

Claims

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1. Hydrodynamic coupling (1),
 - 1.1 with a pump blade wheel (3) and a turbine blade wheel (4), each forming at least one toroidal operating space (5) with each other and can be filled with an operating medium,
 - 1.2 with a housing (26) that contains the pump blade wheel (3) at least partially in the axial direction;
 - 1.3 the housing (26) forms an intermediate space (27) at least with the pump wheel (3); characterized by the following characteristics:
 - 1.4 at least one connection channel (31) is provided in the pump blade wheel (3) between the toroidal operating space (5) and the intermediate space (27);
 - 1.5 the connection channel (31) is designed and oriented in such a way to create a partial flow for rinsing the intermediate space, that at least one directional component is oriented in the flow direction in the operating state of the hydrodynamic coupling (1) between the pump and the turbine blade wheel (3, 4) as well as essentially tangentially to the circulation contour of the flow circulation that becomes set in the operating state between the pump blade wheel (3) and the turbine blade wheel (4).
 2. Hydrodynamic coupling according to claim 1, characterized in that the housing (26) surrounds the coupling (1) in the operating state.
 3. Hydrodynamic coupling according to claim 2, characterized in that the housing (26) is coupled at least indirectly to the pump wheel (3).
 4. Hydrodynamic coupling according to claim 2, characterized in that the housing (26) is coupled at least indirectly to the turbine blade wheel (4).

5. Hydrodynamic coupling according to ~~one of the claims 1 to 4~~,
characterized in that the connection channel is oriented between the toroidal operating
space (5) and the intermediate space (27) tangentially in the direction to the circulation
contour of the flow circulation that becomes set between the pump blade wheel (3) and
turbine blade wheel (4)

6. Hydrodynamic coupling according to ~~one of the claims 1 to 5~~,
characterized in that the connection channel (31) has a straight-line progression free of
directional changes.

7. Hydrodynamic coupling according to ~~one of the claims 1 to 6~~,
characterized in that many connection channels (31) are provided.

8. Hydrodynamic coupling according to claim 7, characterized in that the
connection channels (31) are arranged on a theoretical, hypothetical circumferential line
(UL) of the pump blade wheel (3), which are arranged parallel to a central plane, which is
arranged between the pump (3) and the turbine blade wheel (4) in the installed
condition.

9. Hydrodynamic coupling according to claim 7, characterized in that the
connection channels (31) are arranged on a theoretical, hypothetical circumferential lines
of the pump blade wheel (3), which run parallel to a central plane between the pump
blade wheel (3) and the turbine blade wheel (4) in the installed condition.

10. Hydrodynamic coupling according to ~~one of the claims 7 to 9~~,
characterized in that the distance between two adjacent connection channels (31) is
constant.

11. Hydrodynamic coupling according to ~~one of the claims 1 to 10~~,
characterized in that the cross-section of the connection channel (31) is designed to be

